



Case Report

Wounds due to a modified shot gun (home-made): A case report

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ABSTRACT

In a case of firearm fatality, the autopsy surgeon is required to opine as to the range of fire in addition to the cause of death which will help in reconstruction of the events. Problems may arise in estimating the range of fire based on wound ballistics when there is an alteration or modification in the internal ballistics. We encountered such a case in the department of Forensic Medicine, Kasturba Medical College, Manipal, which is discussed.

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1. Introduction

A home-made firearm is a device which is crudely manufactured, preserving the basic features of a firearm. These guns are mostly made of steel tubes and are smooth bored unlicensed weapons used by criminals in India. The muzzle velocity in country-made firearms is about 500 feet/s.¹ Some of them can be mistaken for factory made guns, but others do not appear to be guns at all.² These guns are somewhat similar to “Zip guns” (The term “zip gun” usually indicates either a crude home-made firearm or a conversion of a blank pistol to a firearm.). The caliber, shape and the size of the firearm depends upon the availability of the ammunition, the barrel tube and the skill of the blacksmith. Consequently, the range, the wounding power and the reliability vary so much that no generalization about the nature of the effects can be made safely.³ Sometimes, different parts of firearms can be collected and assembled together to manufacture another firearm possessing a unique shape which may not be easily identified. The shapes and sizes of these firearms could resemble other articles of use and thus, they could escape recognition. The problem for the pathologists with such guns is that conventional rules of wound and ballistic interpretation do not apply to the injuries, especially where random, irregular missiles such as woodscrews are employed. Local knowledge and experience are essential for

the interpretation of the injuries.⁴ Cartridges that are used in these firearms may also be modified.

In the recent survey of crime cases received in Central Forensic Science Laboratory (CFSL), Chandigarh during the last 20 years, it has been observed that illegal country-made firearms are involved in 21% of crime cases. These firearms are of different size and shape. They also differ in the mode of loading, trigger and cocking system, location of extractor, hammer, etc. The difference in size and shape depends upon the motive of the criminal and mode of such firearms. Moreover, a country-made firearm to some extent reflects the knowledge and skill of the person responsible for its designing and assembling as well as availability of raw material and facility. Very limited information regarding such type of country-made firearms is available in the literature.⁵

We, from the department of forensic medicine, Kasturba medical college, Manipal, have encountered one such case of homicide by a country-made firearm, which is discussed.

2. Case report

A 48 year old man, who was walking along a street, was shot from the back by a motor cycle rider who managed to escape. Due to the noise of the traffic, the sound from the firearm went unheard and on lookers thought it to be a hit and run case. Even the police initially were unsure. Gun shot injuries were confirmed on visiting the scene of crime by a team of forensic experts from our department. The assailant was later detained and the firearm was confiscated. It was a unique firearm possessing the shape of

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a bicycle pump. The assailant later confessed to have shot the victim from close range. People in the vicinity of the crime scene provided history to the police that they had actually seen the assailant standing across the street for more than an hour, with an instrument that looked like a bicycle pump or a 'T' square, but nobody could identify the firearm because of its unique shape.

3. Autopsy findings

There were two large wounds surrounded by smaller injuries over an area of 9.5×7.5 cm over the upper part of the right back.

The first injury was a penetrating laceration (entry wound of the projectile) measuring 2×2.5 cm with inverted margins surrounded by multiple lacerations (satellite lesions) of varying sizes (from 0.3×0.2 cm to 0.2×0.1 cm) (Fig. 1).

The second injury was a penetrating laceration (entry wound) measuring 1.5×1.5 cm with inverted margins surrounded by multiple lacerations (satellite lesions) of varying sizes (from 1×0.5 cm to 0.5×0.2 cm). The second injury was situated 3 cm lateral and 2 cm above the first injury. The injuries contained projectiles (metallic pieces of varying dimensions) embedded in the tissues (Fig. 2).

Internally, 11th and 12th ribs were fractured on the right side near their attachments with the vertebral column.



Fig. 1. Entry wound of projectiles.



Fig. 2. Recovered projectiles.

The right pleural cavity contained 800 ml of blood and blood clots weighing 110 g. The right lung was lacerated over an area of 5×4 cm over the lower lobe.

The lower 3rd of the thoracic aorta showed a tear of 0.5×0.3 cm. A penetrating laceration of size 5×4 cm was present at the right paravertebral region corresponding to T12–L1 region. Metal pieces were recovered from the sub-diaphragmatic area on the right side adjacent to the abdominal aorta.

Examination of the shirt worn by the victim revealed an irregular defect of size 5×5.5 cm over the upper part of the back, on the right side. The fibers were driven in. It was surrounded by multiple irregular defects (seven in number) over an area of 10×9 cm. All the defects had blackened edges.

Complete radiograph of the body was taken prior to autopsy to locate the projectiles.

The clothes of the victim and the projectiles recovered were sent to the forensic science laboratory. The cause of death was opined as to be due to gun shot wound to back creating lethal intrathoracic injury.

4. Examination of the firearm

The home-made firearm was recovered from the accused and examined. The barrel of the firearm was long and measured 2 feet in length. The proximal half of the barrel was that of an air gun and the distal half of the barrel was a home-made hollow metallic one. The two parts were fitted together by a cylindrical metal part that could be unscrewed to detach the distal half. The cartridge could be placed inside the cylindrical part. The trigger was placed at the proximal part of the barrel and was attached to a long firing pin which could strike the back of the cartridge placed anteriorly in the cylindrical part. The unused cartridge was also confiscated and examined. It was altered by the assailant, introducing metal pieces and an air gun slug into it, instead of conventional pellets. The interior of the distal half of the barrel showed a fired cartridge tightly jammed inside. This clearly indicated that a single shot was fired, as there was no time to extract the jammed cartridge and fire again. A horizontal bar of metal was attached to the proximal end of the firearm, which gave it the appearance of a bicycle pump or a 'T square' which is an instrument used by the architects. This fire arm could be hung around the neck and easily go unidentified (Fig. 3).

5. Discussion

Gun shot injuries and deaths have become an international epidemic. In addition to conventional firearms, the use of home-made firearms is increasing day by day. However, these firearms and the injuries caused by them have not been adequately reported in



Fig. 3. Modified air gun.



Fig. 4. Modified shot gun cartridge.

literature. Book and Botha (1994) had reported an unusual zip gun murder in the Kwa Zulu Natal province.⁶ Hartshorne et al. (1997) had reported an accidental fatality due to a hand crafted pen gun.⁷ Maxeiner et al. (1986) had reconstructed a suicide scene event by a self made muzzle loader.⁸ Di Nunno et al. describe a case of suicide of a man with a blank cartridge dummy pistol that had been modified to fire home-made bullets.⁹

The injuries produced by home-made firearms also show wide variations. The entry wound in the present case had satellite lesions and there was blackening of the cloth near the entry wound. Under normal circumstances the presence of blackening indicates the range to be that of close, whereas presence of satellite lesions indicates the range to be of distant shot. However the firearm distance determination is always given as a rough guide and not a precise measurement. That can be done only when the actual weapon and ammunition are placed through a series of test shots to reproduce injury.

Also in our case, examination of the injury on the body showed two large wounds with satellite lesions around them and one large defect on the cloth. It seemed to be due to two shots fired. But the

case history and the examination of the firearm revealed that only one shot was fired as the cartridge from the first shot had got jammed in the barrel and there was no time to extract the cartridge and fire again. A single shot fired had produced two closely separated large wounds with satellite lesions around them. This had probably been caused due to the alteration of the cartridge by the assailant (Fig. 4). This is an unusual phenomenon and shows that reconstruction becomes very difficult in such cases.

Conflict of Interest

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Ethical Approval

None declared.

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